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California Public Utilities Commission Workshop
Data and Data Sharing for DRP

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Agenda

- **Rationale for data sharing**

- **Types of data to be shared**

- **Concerns / Risks**

Rationale for Utility Data Sharing

- **Data sharing informs DER industry business decisions**
  - Should DER providers open a warehouse/office in a specific geographic area?
  - Should DER providers pursue projects on a specific feeder?
  - Does DER provider have enough business runway to retain local employees?

- **Data sharing supports industry innovation**
  - Data sharing unlocks third party engagement, dramatically increasing pace of innovation
  - Next generation distribution planning and operations requires skillsets that are not traditional utility strengths (i.e. data analysis, new product development, software development, etc)
  - Third parties have and can obtain knowledge to engage in and improve distribution planning

- **Data sharing enables credible auditing of utility investment plans**
  - Solely publishing outcomes of analyses (i.e. hosting capacity analyses) does not enable sufficient auditing of utility methodology/decision making
  - Data access is the foundation of current ratepayer advocacy efforts and should be extended into distribution planning

- **Data sharing supports public safety**
  - Transparent data increases visibility into potential public safety concerns

Data to be Shared

1 Locational Value	2 Integrated Capacity	3 Planning & Investments	4 Operational Support	5 Market Support

Integrated Capacity Analysis

- Inform likelihood of interconnection for specific DER projects
- Enable third party innovation in increasing integrated capacity
- Audit and improve upon utility plans to enable adequate integrated capacity

Category	Data Type	Data Details	Intended Use
Circuit Model	Circuit Models	GIS or distribution analysis software model	Base required to model circuit
Loading	Feeder-Level Loading	• Annual loading and voltage data for feeder and SCADA line equipment (15 min or hourly) If not available, then: • Annual absolute maximum and minimum loading / voltage • Annual daytime (7am-6pm) maximum and minimum loading / voltage • Monthly peak-day load curve and monthly minimum-day load curve (24 daily load / voltage curves, 1 hour data)	Loading / voltage data to perform steady state integrated capacity analysis
	Customer Type Breakdown	Aggregated customer type breakdown by circuit node	Estimate load curve based on typical customer loading
	Circuit Node Loading	Aggregated loading by circuit node	Allocate loading along circuit
	Existing DER Capacity	Aggregated existing DER capacity by circuit node	Incorporate existing DER capacity into hosting analysis
Equipment details	Equipment Thermal Ratings	Ratings for each piece of equipment	Evaluate thermal loading limits
	Voltage Regulating Equipment	Settings for each specific device	Evaluate voltage equipment performance
	Protection Equipment	Settings for each specific device	Evaluate protection criteria

Integrated Capacity:
Data downloadable by circuit / substation

Area 694

Generation Interconnection
Potential: 2.0 MVA

Source: Southern California Edison RAM Maps

# Locational Benefits

- Inform targeting of locational DER deployments
- Audit and improve upon utility *Locational Benefits* methodology

| Category	Data Type	Data Details	Intended Use
Capacity	Planned Capacity projects	Projects planned w/in 10 years by substation / circuit / PNode (LMP)	Assess where DERs can be deployed to offset investments
	DER and Load Growth Forecasts vs. Integrated Capacity	• DER Growth • Load Growth • Hosting Capacity	Assess when DER and load growth will surpass integrated capacity; compare timing against planned projects
Voltage / Power Quality	Planned Voltage / Power Quality projects	Projects planned in next 10 years by substation / circuit / PNode	Assess where DERs can be deployed to offset investments
	Observed violations statistics	SCADA voltage violation data	Assess whether investment plan matches needs, and identify areas to target DERs
	Customer complaints	Statistics for customer voltage / power quality complaints by location	Assess whether investment plan matches needs, and identify areas to target DERs
Reliability / Resiliency / Security	Planned Reliability / Resiliency / Security projects	Projects planned in next 10 years by substation / circuit / PNode	Assess where DERs can be deployed to offset investments
	Reliability Statistics *excluding* and *including* major events	CAIDI, SAIDI, SAIFI, CEMI by substation / circuit	Assess whether investment plan matches needs, and identify areas to target DERs
	Existing supply redundancy level	# of supply feeds (use as proxy for resiliency)	Assess whether investment plan matches needs, and identify areas to target DERs
	Probability of major event	Indexed probability of major event by location / geography	Assess whether investment plan matches needs, and identify areas to target DERs

Planning and Investments

Time to Zero Integrated Capacity:
DER + Load Growth vs. Hosting Capacity + Planned Investments
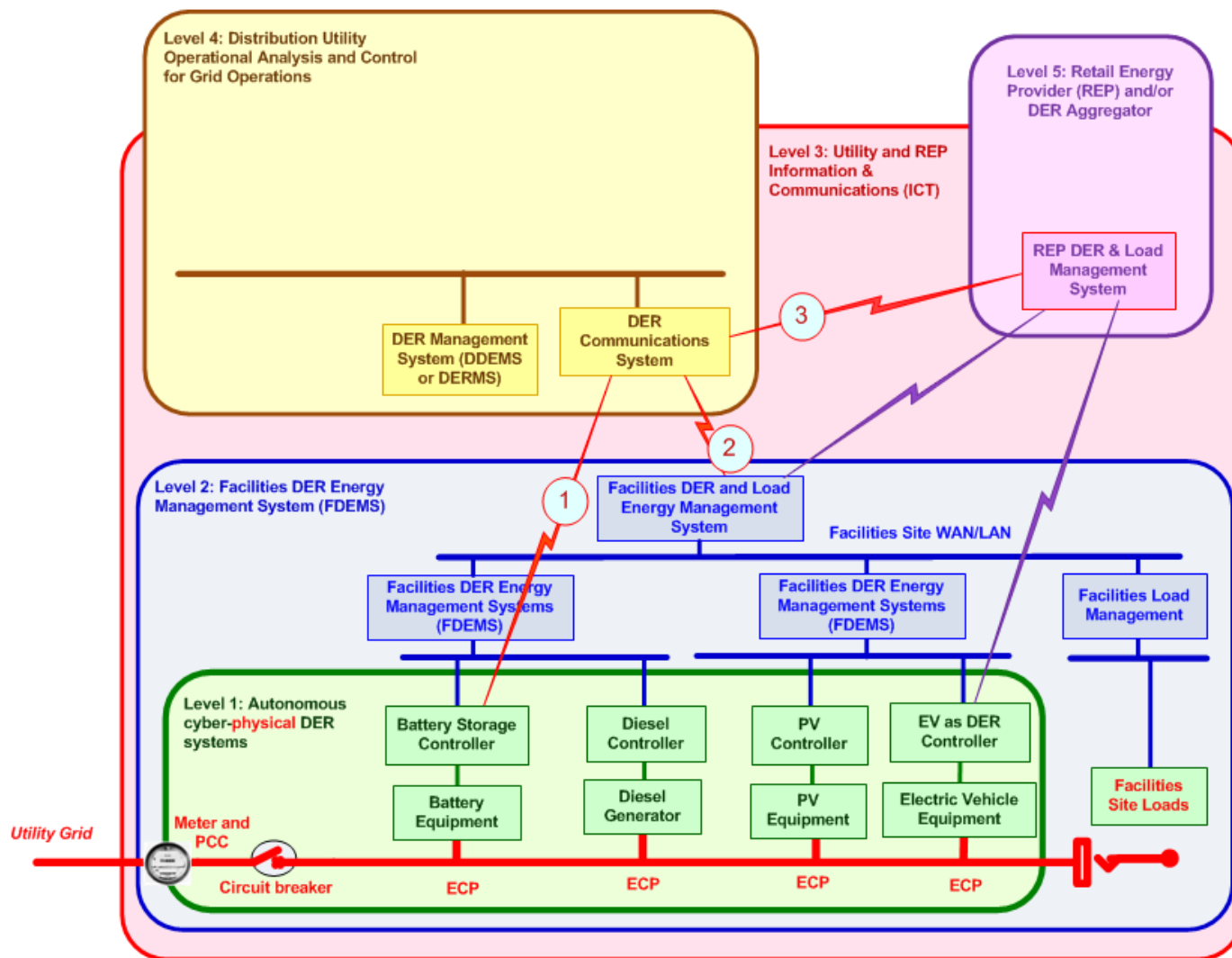

Source: Southern California Edison RAM Maps
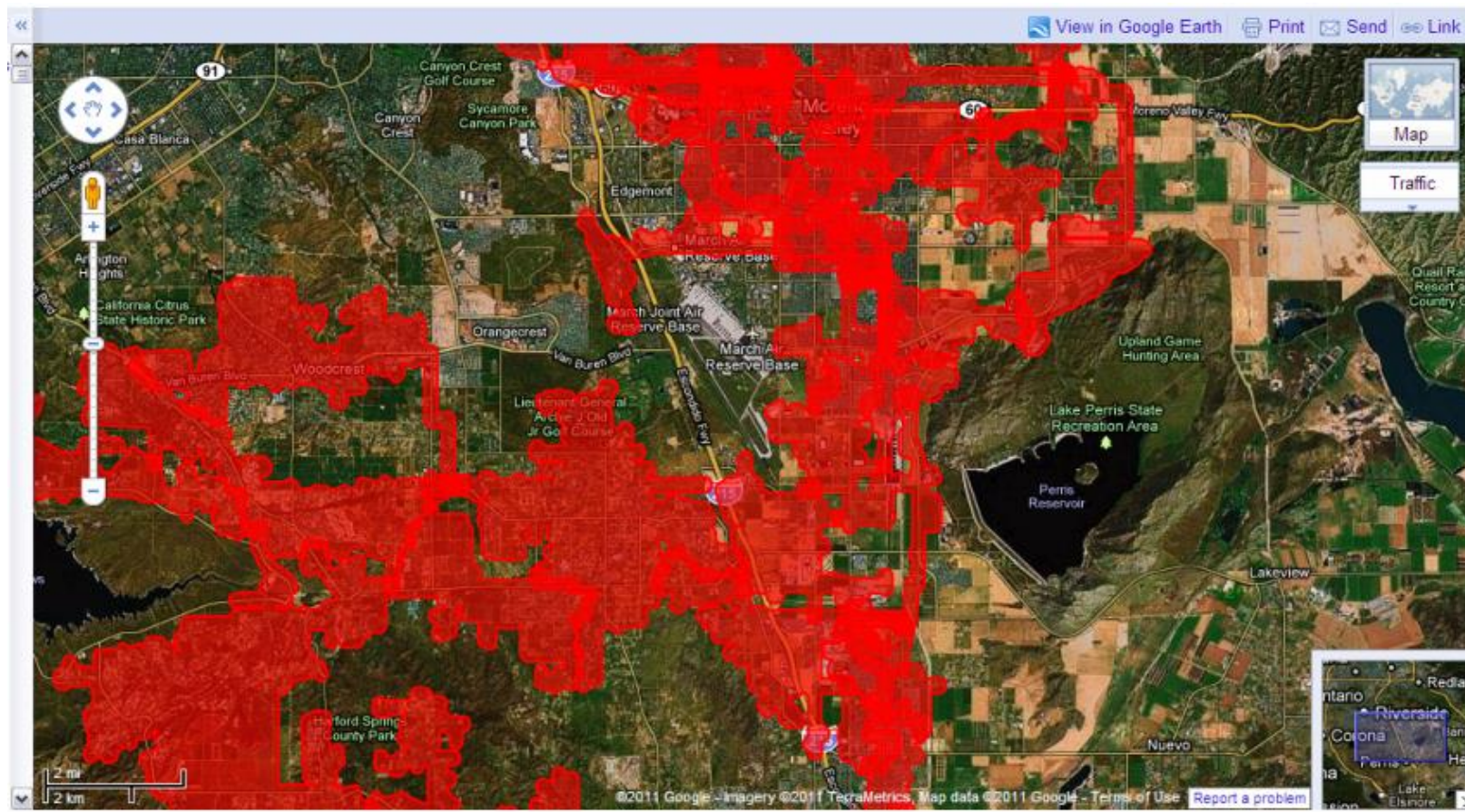
Planning and Investments

Target Opportunity Zones
Areas of Need for Capacity, Voltage/Power Quality and Reliability/Resiliency
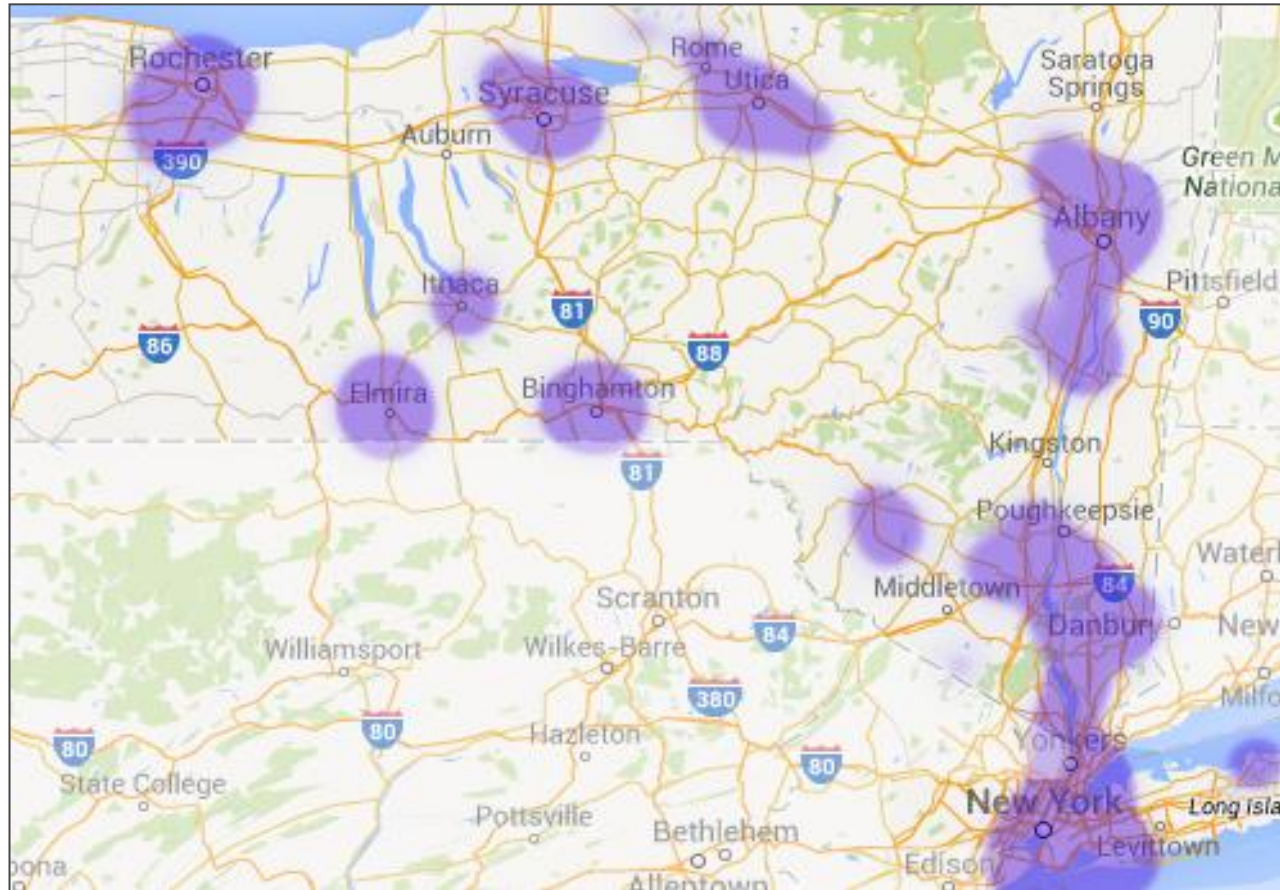
Source: NY Prize Opportunity Zones, NYSERDA

Operational Data

Source: California Smart Inverter Working Group

Market Data

- Demographics
  - Household income levels
  - CARE customers
  - Customer type (Residential, Commercial, Industrial, Agricultural, Other)

- Customer DER adoption forecasts

- Load and DER forecasts by scenario

Concerns / Risks

- Security concerns

- Confidentiality concerns

- Utilities' ability to share data

Questions & Answers